

REMARKS

Claims 1-6, 8-10, 14-15, 17, 20-23 and 25-31 are now pending in the application. Applicant respectfully requests reexamination of the application in view of the above amendments and concurrently filed Request for Continued Examination.

I. Response to Rejections Based on Wolf et al.

In part 2 of the Office Action, claims 1, 2, 4-6, 8-11, 14-17 and 20-23 stand rejected under 35 USC § 102(b) as being anticipated by UPS 5,110,660 ("Wolf"). Applicant hereby cancels claims 11 and 16, and traverses the remaining of these rejections.

In part 4 of the Office Action claims 3, 12-13, 18-19 and 24 stand rejected under 35 USC § 103 as being obvious over Wolf. Applicant hereby cancels claims 12-13, 18-19 and 24. Applicant traverses the rejection of Claim 3 based on its dependence from Claim 1.

The present invention presents a novel, multi-axis shock absorber, suitable for mechanically isolating electronic components (such as relays) from multi-axial shock and vibration induced by high accelerations of aircraft and space vehicles. The cited reference of Wolf discloses a single axis rubber spring, contemplated by the inventor for use in springing "great masses" in automobiles. Wolf, 1:49-51; 2:19-24.

Whereas Wolf's spring dampens loads only in a vertical direction without buckling, the present invention intentionally buckles so that it may dampen loads in three orthogonal directions. In view of Wolf, this feature is both novel and non-obvious.

a. Wolf teaches a single-axis spring, not a multi-axis shock absorber.

Part 2 of the Office Action asserts that Wolf teaches, in his FIG. 3, a multi-axis vibration isolator. It further asserts that Wolf teaches an isolator shaped for attenuating vibrations along both vertical and lateral axes. These assertions cannot be supported by any reasonable interpretation of Wolf.

FIG. 3 of Wolf is a top cross-sectional view of a single-axis cylindrical rubber spring. It is a single-axis spring because it is designed to absorb loads incident on the spring only in one direction. “The rubber spring element shown in FIG. 3 is designed for an imposed load which is to be sprung and whose imposed load vector is parallel to the center axis of the central bore.” Wolf, 4:21-24. Nowhere does Wolf teach or suggest using his spring to absorb loads along multiple orthogonal directions. To wit, Wolf’s FIG. 2 shows the load vector F1, *i.e.* the only load vector, directed vertically downward and normal to the top surface of the spring. Thus, Wolf’s spring absorbs shock in the “Z” direction only.

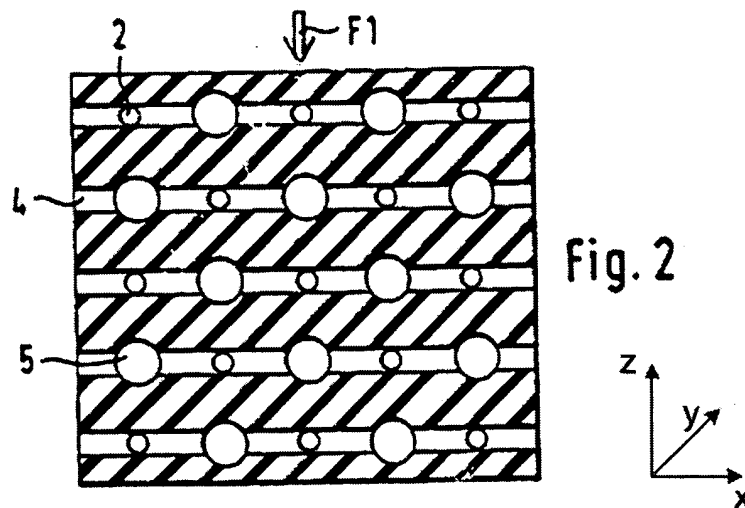


FIG. 2 of 5,110,660 (Wolf), teaching a spring capable of absorbing shock in the vertical (“z”) direction only under load from force vector F1.

Because Wolf fails to teach a spring absorbing loads imposed on more than one axis, Wolf does not anticipate the present invention, specifically with regard to Claims 1, 10 and 21. Each of these claims recites an isolator configured to attenuate vibrations along at least two orthogonal (axial and lateral) directions. Moreover, there is no suggestion in Wolf to configure a spring to absorb loads incident on multiple axes.

Under well-settled principles of patent law, a rejection based on 35 USC § 102 cannot be sustained unless all elements of the claims at issue are taught in a cited reference. *E.I. du*

Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 7 USPQ2d 1129 (Fed. Cir. 1988). And, a rejection based on 35 USC § 103 cannot be sustained unless the cited reference(s) (a) provide a suggestion or motivation to combine reference teachings; (b) provide a reasonable expectation of success; and (c) teach all of the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Since Wolf fails to teach or suggest the limitation of an isolator attenuating vibrations along multiple orthogonal axes, the rejection of Claims 1, 10 and 21, and the rejection of claims depending therefrom, should be withdrawn.

b. Wolf teaches a non-buckling spring, whereas the invention relies on buckling action to effect lateral shock absorption.

Buckling action clearly distinguishes the present invention from the teachings of Wolf. In order to effect lateral shock absorption, an isolator according to the present invention is intentionally designed to resiliently deform when subject to mechanical load in a lateral (as opposed to axial) direction. This is best illustrated in the Application in FIG. 8, which shows the side wall of the cylindrical isolator buckling in response to lateral excitation. *See also* Application, paragraph 0030.

In contrast, Wolf expressly teaches away from using his spring to absorb lateral loads, because Wolf emphasizes the importance of springing vertical loads without buckling the spring. *See* Wolf, 2:19-24 and 46-53. This distinction highlights the non-obviousness of the present invention in view of Wolf. The buckling action of the present invention enables attenuation of vibration along multiple axes, which is a distinguishing limitation recited in claims 1-6, 8-10, 14 and 21-23. Applicant therefore requests withdrawal of all obviousness rejections of these claims.

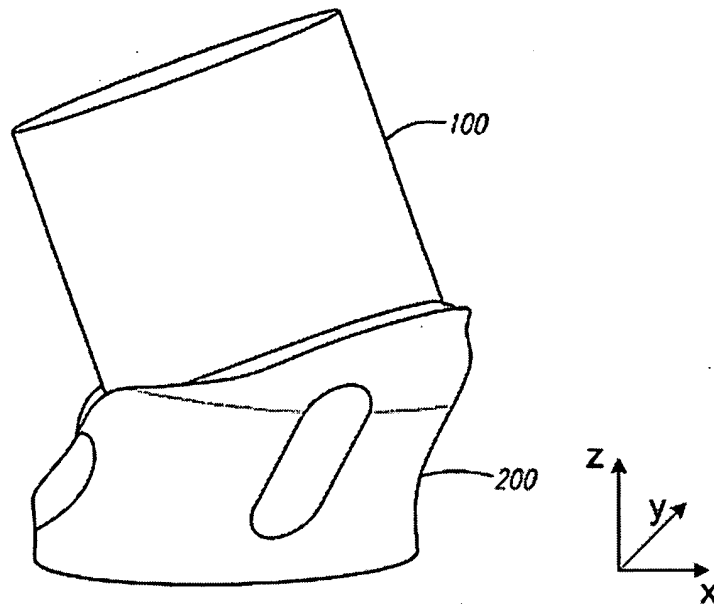


FIG. 8 of the present invention, showing a multi-axis isolator 200 buckling under load to absorb shock in the x, y, and z directions.

c. Wolf fails to teach a cavity for receiving an electronic component or shock-sensitive device.

Claims 9-10, 14 and 23 all recite a cavity for receiving a component or a shock sensitive device. The cavity is configured so that a component such as a relay may fit snugly within to ensure proper suspension. *See, e.g.* Application, paragraph 0027; FIG. 5. This limitation was not addressed in the Office Action. Moreover, this limitation is not taught or suggested anywhere in Wolf. Therefore Claims 9-10, 14 and 23 are distinguishable over Wolf, and should be allowed to issue on this basis alone.

II. Claim Amendments

a. Claims 15 and 17

Claims 15 is amended herein to recite a cavity, defining the top end, for receiving an electronic component. For the same reason asserted in the preceding paragraph, this limitation makes Claim 15 patentable over Wolf.

In addition, Claim 17 is amended herein to include a further limitation: wherein the plus sign shaped through-hole is sized and shaped to provide attenuation of a desired frequency in a direction parallel to a plane defined by the plus sign shape. Thus, Claim 17 now recites a lateral shock absorption feature that is neither taught nor suggested by Wolf. For the same reasons asserted above in section I, Applicants request allowance of Claim 17.

b. New Claims

Claims 25-31 are added as dependent claims to further emphasize distinguishing features of the invention presented above in section I. In each of the new claims, these features are expressed either as (i) an isolator wherein, responsive to shock along a lateral axis, the isolator body absorbs the shock by resilient buckling, or (ii) an isolator wherein the isolator body attenuates vibration along the lateral axis by resilient lateral displacement of a portion of the body. Support for these claims is provided throughout the Application, for example, in FIG. 8, and in paragraph 0030.

III. Conclusion

In view of the above amendments and remarks, it is respectfully submitted that all the pending claims are in condition for allowance, and such action is earnestly solicited. If the Examiner believes that a telephone interview will help to advance prosecution of this case, she is respectfully requested to contact the undersigned attorney at the telephone number provided.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 14, 2006.

By: Tanya Kiatkulpihome

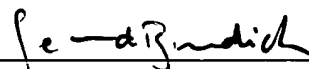


Signature

Dated: September 14, 2006

Very truly yours,

SNELL & WILMER L.L.P.



Sean D. Burdick
Registration No. 51,513
600 Anton Boulevard, Suite 1400
Costa Mesa, CA 92626
Telephone: (714) 427-7083
Facsimile: (714) 427-7799